IN THE CLAIMS:

Please amend the claims as shown below, in which deleted terms are indicated with strikethrough and/or double brackets, and added terms are indicated with underscoring. Please cancel claims 2, 8, 11 and 12 without prejudice or abandonment of the subject matter therein. The following list of claims replaces all previous versions, and listings of claims in the application.

1. (Currently amended) A method for compositing a computer-graphics image and a picture taken by a camera comprising:

defining, in accordance with conditions in which the picture is taken, a three-dimensional model, a viewpoint, and a plane of projection, in a space established on a computer, the conditions comprising at least one of the tilt angle of the camera relative to a ground surface and the position of a light source relative to the camera;

defining lines of sight extending from the viewpoint to projection pixels on the plane of projection so that each of the lines of sight conforms with a ray of light incident on a pixel corresponding thereto of the picture taken by the camera;

tracing the lines of sight extending from the viewpoint through the plane of projection and the three-dimensional model to obtain attributes of portions of the three-dimensional model corresponding to the projection pixels, thereby forming a two-dimensional image of the three-dimensional model on the plane of projection; and

superposing the two-dimensional image on the picture to generate a composite image;

wherein said step of defining lines of sight involves providing a calibration table having first data and second data correlated with each other, the first data comprising positions of pixels of the

picture taken by the camera and the second data comprising calibration data corresponding to directions and positions of rays of light incident on the pixels of the picture, wherein the lines of sight are obtained by looking up the second data by the first data in the calibration table.

2. (Canceled).

3. (Previously Presented) An apparatus for compositing a computer-graphics image created by rendering a three-dimensional model and a picture taken by a camera, comprising:

a calibration table storage unit for storing a calibration table having first data and second data correlated with each other, the first data comprising positions of pixels of the picture taken by the camera and the second data comprising directions and positions of rays of light incident on the pixels of the picture corresponding to optical properties of the camera;

a line-of-sight calculation unit for obtaining lines of sight extending from a viewpoint to the three-dimensional model, based upon the directions and positions of the rays of light incident on the pixels of the picture, obtained by looking up the second data with the first data in the calibration table, so that each of lines of sight passing through projection pixels on a plane of projection conforms with a ray of light incident on a pixel corresponding thereto of the picture taken by the camera;

a two-dimensional image generation unit for generating a two-dimensional image on the plane of projection from the three-dimensional model by tracing the lines of sight so as to obtain attributes of portions of the three-dimensional model corresponding to the projection pixels on the plane of projection; and

a composite image generation unit for superposing the two-dimensional image on the

picture, to generate a composite image.

4. (Original) The apparatus of claim 3, wherein each piece of the second data of the calibration table includes a direction in which a ray of light strikes on a pixel of the picture and a displacement from a base point to the incident light.

5. (Original) The apparatus of claim 3, wherein one piece of the second data of the calibration table includes coordinates of two points on the incident light.

6. (Currently amended) A program embodied on a computer readable medium for compositing a computer-graphics image and a picture taken by a camera, the program causing a computer to perform the steps of:

defining, in accordance with conditions in which the picture is taken, a three-dimensional model, a viewpoint, and a plane of projection, in a space established on a computer, the conditions comprising at least one of the tilt angle of the camera relative to a ground surface and the position of a light source relative to the camera;

defining lines of sight extending from the viewpoint to projection pixels on the plane of projection so that each of the lines of sight conforms with a ray of light incident on a pixel corresponding thereto of the picture taken by the camera;

tracing the lines of sight extending from the viewpoint through the plane of projection and the three-dimensional model to obtain attributes of portions of the three-dimensional model corresponding to the projection pixels, thereby forming a two-dimensional image of the three-dimensional model on the plane of projection; and

superposing the two-dimensional image on the picture to generate a composite image;

wherein the step of defining lines of sight involves providing a calibration table having first data and second data correlated with each other, the first data comprising positions of pixels of the picture taken by the camera and the second data comprising calibration data corresponding to directions and positions of rays of light incident on the pixels of the picture, wherein the lines of sight are obtained by looking up the second data by the first data in the calibration table.

7. (Currently amended) A method for rendering a three-dimensional model created by computer graphics into a two-dimensional image to be superposed on a picture taken by a camera to form a composite image, the method comprising:

defining a viewpoint, and a plane of projection, in a space established on a computer where the three-dimensional model is located in accordance with the conditions in which the picture is taken, the conditions comprising at least one of the tilt angle of the camera relative to a ground surface and the position of a light source relative to the camera;

defining lines of sight extending from the viewpoint to projection pixels on the plane of projection so that each of the lines of sight conforms with a ray of light incident on a pixel corresponding thereto of the picture taken by the camera;

tracing the lines of sight extending from the viewpoint through the plane of projection and the three-dimensional model to obtain attributes of portions of the three-dimensional model corresponding to the projection pixels; and

setting the obtained attributes of the portions of the three-dimensional model to the projection pixels corresponding thereto, to form a two-dimensional image of the three-dimensional model on the plane of projection;

wherein said step of defining lines of sight involves providing a calibration table having first data and second data correlated with each other, the first data comprising positions of pixels of the picture taken by the camera and the second data comprising calibration data corresponding to directions and positions of rays of light incident on the pixels of the picture, wherein the lines of sight are obtained by looking up the second data by the first data in the calibration table.

8. (Canceled)

9. (Previously Presented) An apparatus for rendering a three-dimensional model created by computer graphics into a two-dimensional image to be superposed on a picture taken by a camera to form a composite image, the apparatus comprising:

a calibration table storage unit for storing a calibration table having first data and second data correlated with each other, the first data comprising positions of pixels of the picture taken by the camera and the second data comprising directions and positions of rays of light incident on the pixels of the picture corresponding to optical properties of the camera;

a line-of-sight calculation unit for obtaining lines of sight extending from a viewpoint to the three-dimensional model, based upon the directions and positions of the rays of light incident on the pixels of the picture, obtained by looking up the second data with the first data in the calibration table, so that each of lines of sight passing through projection pixels on a plane of projection conforms with a ray of light incident on a pixel corresponding thereto of the picture taken by the camera; and

a two-dimensional image generation unit for generating the two-dimensional image on the plane of projection from the three-dimensional model by tracing the lines of sight so as to obtain attributes of portions of the three-dimensional model corresponding to the projection

pixels on the plane of projection.

10. (Currently amended) A program embodied on a computer readable medium for rendering a three-dimensional model created by computer graphics into a two-dimensional image to be superposed on a picture taken by a camera to form a composite image, the program causing a computer to perform the steps of:

defining a viewpoint, and a plane of projection, in a space established on a computer where the three-dimensional model is located in accordance with the conditions in which the picture is taken, the conditions comprising at least one of the tilt angle of the camera relative to a ground surface and the position of a light source relative to the camera;

defining lines of sight extending from the viewpoint to projection pixels on the plane of projection so that each of the lines of sight conforms with a ray of light incident on a pixel corresponding thereto of the picture taken by the camera;

tracing the lines of sight extending from the viewpoint through the plane of projection and the three-dimensional model to obtain attributes of portions of the three-dimensional model corresponding to the projection pixels; and

setting the obtained attributes of the portions of the three-dimensional model to the projection pixels corresponding thereto, to form a two-dimensional image of the three-dimensional model on the plane of projection;

wherein said step of defining lines of sight involves providing a calibration table having first data and second data correlated with each other, the first data comprising positions of pixels of the picture taken by the camera and the second data comprising calibration data corresponding to directions and positions of rays of light incident on the pixels of the picture, wherein the lines

of sight are obtained by looking up the second data by the first data in the calibration table.

11. (Canceled)

12. (Canceled)

13. (Previously Presented). The method for compositing a computer-graphics image and a picture taken by a camera according to claim 1, further comprising the method step of defining each line of sight extending from the view point to the projection pixels using

a displacement vector comprising a 3-D vector representing displacement from the viewpoint to a displaced viewpoint,

a direction vector comprising a 3-D vector representing direction from the displaced viewpoint toward the projection pixel,

wherein the displaced viewpoint is obtained by shifting a starting position of a corresponding line of sight from the viewpoint of the corresponding line of sight by a displacement amount corresponding to the displacement vector, and

wherein the line of sight for a given projection pixel is determined using the viewpoint, the displacement vector, and the direction vector.

14. (Previously Presented). The program embodied on a computer readable medium for compositing a computer-graphics image and a picture taken by a camera according to claim 6, further comprising the method step of defining each line of sight extending from the view point to the projection pixels using

a displacement vector comprising a 3-D vector representing displacement from the viewpoint to a displaced viewpoint,

a direction vector comprising a 3-D vector representing direction from the displaced

viewpoint toward the projection pixel,

wherein the displaced viewpoint is obtained by shifting a starting position of a corresponding line of sight from the viewpoint of the corresponding line of sight by a displacement amount corresponding to the displacement vector, and

wherein the line of sight to a projection pixel is determined using the viewpoint, the displacement vector, and the direction vector.

15 (Previously Presented). The apparatus for compositing a computer-graphics image created by rendering a three-dimensional model and a picture taken by a camera according to claim 3, wherein the second data comprises

a displacement vector representing the displacement of a displacement viewpoint relative to the viewpoint, and

a direction vector representing a direction of the line of sight from the displacement viewpoint to the projection pixel.